

Wilson Area School District Planned Course Guide

Title of planned course: Mathematics Grade 2

Subject Area: Math

Grade Level: 2nd

Course Description: This course will focus on grade 2 PA Core Standards. Students will learn and apply concepts of place value including composing and decomposing numbers. Students will learn addition and subtraction strategies, including traditional addition and subtraction, using a model, decomposing numbers, and equal groups and arrays, and use these strategies to solve mathematical problems with whole numbers up to four digits. Students will also use these skills with money, time, measurement, and graphs and data. Students will also manipulate shapes and geometric figures.

Time/Credit for this Course: One Full Academic Year

Curriculum Writing Committee: Ashley Clarke, Sarah McKitish, Heather Dachiu

Curriculum Map

August/September: Operations and Algebraic Thinking:

- Topic 1: Fluently Add and Subtract Within 20 (approx. 12 days)
- Topic 2: Work with Equal Groups (approx. 7 Days) *may need to supplement equal groups

October: Operations and Algebraic Thinking/ Numbers and Operations:

- First Year of Program: Supplement with Place Value to 100 as students will not have had this in first grade yet. Second Year of program, supplementing Place Value to 100 may not be necessary. *name place values to hundreds place, reading and writing numbers in different forms to the 100s, composing and comparing 3 digit numbers, 10 more/10 less (approx. 7 days)
- Topic 3: Add Within 100 Using Strategies (approx. 8 days)
- Topic 4: Fluently Add Within 100 (approx. 11 days)

November: Operations and Algebraic Thinking/ Numbers and Operations:

- Topic 4: Continuation of Fluently Add Within 100
- Topic 5: Subtract Within 100 Using Strategies (approx 9 days)

December: Operations and Algebraic Thinking/ Numbers and Operations:

- Topic 6: Fluently Subtract Within 100 (approx 9 days)
- Topic 7: More Solving Problems Involving Addition and Subtraction (approx 9 days)

January: Measurement and Data/ Numbers and Operations:

- Topic 15: Graphs and Data (approx 8 Days)
- Topic 9: Numbers to 1,000 (approx 12 days - including a quiz/reteaching day in the middle)

February: Measurement and Data/ Numbers and Operations:

- Topic 10: Add Within 1,000 Using Models & Strategies (approx 9 days) *supplement standard algorithm in daily
- Topic 11: Subtract Within 1,00 Using Models & Strategies (approx 8 days) * supplement standard algorithm daily

March: Measurement and Data/ Numbers and Operations/ Operations and Algebraic Thinking:

- Supplement Money *supplement with Coin Identification, Counting Coins, Making Equal Amounts (approx 6 days)
- Topic 8: Work With Money (approx 7 days)
- Topic 8: Working With Time *supplemental review of time to the hour, half hour(2 days). Supplement additional practice of time to 5 minutes (add 2 days). Supplement additional practice of Time Before & After the Hour (add 1 day) (approx 10 days total)

April: Measurement and Data/ Geometry/ Operations and Algebraic Thinking:

- Topic 12: Measuring Length (approx 11 days)
- Topic 13: Shapes & Their Attributes (approx 10 days)

May: Measurement and Data/ Operations and Algebraic Thinking:

- Topic 14: More Addition, Subtraction, and Length (approx 7 days) - * brings us to Mid-May

June: End of year test, Step up to 3rd grade lessons

Wilson Area School District Planned Course Materials

Course Title: Mathematics Grade 2

Textbook: Envision Math Common Core

Supplemental Books: Lessons and Activities that provide additional practice for students.

Teacher Resources:

- Teacher Manuals (2 total: 1 - Topics 1-8, 2 - Topics 9-15)
- Teacher's Program Overview
- Teacher's Resource Masters - copy of student book Vol. 1 & 2, Assessment Source Book, Additional Practice Workbook on Topics 1-15, Student companion, Resource Masters Vol 1 & 2 - Interactive Math Stories, Home & School Connections (English & Spanish), Pick-a-Project, Daily Review, Math Literacy, & Enrichment
- Digital Resources provided through the EnVision's website

Curriculum Scope & Sequence

Planned Course: Mathematics Grade 2

PA Core Cluster: Operations and Algebraic Thinking - comparison, relationships, operations meanings and relationships, properties, basic facts and algorithms, practices, processes, and proficiencies

Time frame: Approx 4 weeks (19 days)

- Topic 1: Fluently Add & Subtract Within 20 (12 days)
- Topic 2: Work with Equal Groups (7 days)

State Standards:

- 2.2.2.A.1- Represent and solve problems involving addition and subtraction within 100
- 2.2.2.A.2 - Use mental strategies to add and subtract within 20
- 2.2.2.A.3 - Work with equal groups of objects to gain foundations for multiplication

Essential content/objectives: At end of the unit, students will be able to:

- Represent and solve problems involving addition and subtraction within 20
- Use mental strategies to add and subtract within 20
- Identify odd and even numbers
- Work with equal groups of objects and arrays to gain foundations for multiplication
- Apply reasoning and problem solving strategies to fluently add and subtract within 20

Core Activities: Students will complete/participate in the following:

- Mathematical literacy stories
- Hands on learning through manipulatives
- Vocabulary activities
- Explicit modeling instruction
- Guided and independent practice
- Problem solving
- Differentiated practice

Extensions:

- Enrichment and Additional practice worksheets
- Center games
- Problem solving leveled reading maps
- Pick a Project extensions
- 3 ACT Math problem solving
- Online practice games

Remediation:

- Center games
- Reteach and practice worksheets
- Student manipulative kits
- Online interactive lessons

Instructional Methods:

- Direct instruction
- Modeling
- Problem Solving interactive learning
- Guided practice
- Independent practice
- Differentiated instruction
- Visual learning
- Manipulatives

Materials & Resources:

- Teacher manuals
- Student manipulative kits
- Student workbooks
- Student and teacher online resources
- Supplemental practice as needed

Assessments:

- Placement test
- Topic tests
- Performance assessment
- Basic facts timed tests
- Benchmark test

Curriculum Scope & Sequence

Planned Course: Mathematics Grade 2

PA Core Cluster: Numbers and Operations in Base Ten - Number uses, classification, and representation, numbers and a number line, comparison and relationships, patterns, relations, and functions, operations meanings and relationships, properties, basic facts and algorithms, practices, processes, and proficiencies

Time frame: approx 9 weeks (44 days)

- First Year of Program: Supplement with Place Value to 100 as students will not have had this in first grade yet. Second Year of program, supplementing Place Value to 100 may not be necessary. *name place values to hundreds place, reading and writing numbers in different forms to the 100s, composing and comparing 3 digit numbers, 10 more/10 less (approx. 7 days)
- Topic 3: Add Within 100 Using Strategies (8 days)
- Topic 4: Fluently Add Within 100 (11 days)
- Topic 5: Subtract Within 100 Using Strategies (9 days)
- Topic 6: Fluently Subtract Within 100 (9 days)

State Standards:

- 2.1.2.B.1 - Use place value concepts to represent amounts of tens and ones and to compare three digit numbers
- 2.1.2.B.2 - Use place value understanding and properties of operations to add and subtract within 1000
- 2.1.2.B.3 - Use place value understanding and properties of operations to add and subtract within 1000
- 2.2.2.A.1 - Represent and solve problems involving addition and subtraction within 100

Essential content/objectives: At end of the unit, students will be able to:

- Understand place value to 100
- Use place value understanding to add two-digit numbers with and without regrouping
- Use place value understanding to subtract two-digit numbers with and without regrouping
- Utilize a variety of addition and subtraction strategies and models to solve addition and subtraction problems
- Apply reasoning and problem solving strategies to solve for two-digit addition and subtraction problems

Core Activities: Students will complete/participate in the following:

- Mathematical literacy stories
- Hands on learning through manipulatives
- Vocabulary activities
- Explicit modeling instruction
- Guided and independent practice
- Problem solving
- Differentiated practice

Extensions:

- Enrichment and Additional practice worksheets
- Center games
- Problem solving leveled reading maps
- Pick a Project extensions
- 3 ACT Math problem solving
- Online practice games

Remediation:

- Center games
- Reteach and practice worksheets
- Student manipulative kits
- Online interactive lessons

Instructional Methods:

- Direct instruction
- Modeling
- Problem Solving interactive learning
- Guided practice
- Independent practice
- Differentiated instruction
- Visual learning
- Manipulatives

Materials & Resources:

- Teacher manuals
- Student manipulative kits
- Student workbooks
- Student and teacher online resources
- Supplemental practice as needed

Assessments:

- Placement test
- Topic tests
- Performance assessment
- Basic facts timed tests
- Benchmark test

Curriculum Scope & Sequence

Planned Course: Mathematics Grade 2

PA Core Cluster: Operations and Algebraic Thinking - comparison, relationships, operations meanings and relationships, properties, basic facts and algorithms, practices, processes, and proficiencies

Time frame: Approx 2 weeks (9 days)

- Topic 7: More Solving Problems Involving Addition and Subtraction (9 days)

State Standards

- 2.2.2.B.3 - Use place value understanding and properties of operations to add and subtract within 1000
- 2.3.2.A.1 - Represent and solve problems involving addition and subtraction within 100
- 2.3.2.A.2 - Use mental strategies to add and subtract within 20

Essential content/objectives: At end of the unit, students will be able to:

- Determine operation and apply strategy to solve addition and subtraction problems within 1,000
- Apply reasoning and problem solving strategies to solve two-step word problems
- Write and solve number stories
- Solving for missing numbers to make equations true

Core Activities: Students will complete/participate in the following:

- Mathematical literacy stories
- Hands on learning through manipulatives
- Vocabulary activities
- Explicit modeling instruction
- Guided and independent practice
- Problem solving
- Differentiated practice

Extensions:

- Enrichment and Additional practice worksheets
- Center games
- Problem solving leveled reading maps
- Pick a Project extensions
- 3 ACT Math problem solving
- Online practice games

Remediation:

- Center games
- Reteach and practice worksheets
- Student manipulative kits
- Online interactive lessons

Instructional Methods:

- Direct instruction
- Modeling
- Problem Solving interactive learning
- Guided practice
- Independent practice
- Differentiated instruction
- Visual learning
- Manipulatives

Materials & Resources:

- Teacher manuals
- Student manipulative kits
- Student workbooks
- Student and teacher online resources
- Supplemental practice as needed

Assessments:

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- Topic tests
- Performance assessment
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Curriculum Scope & Sequence

Planned Course: Mathematics Grade 2

PA Core Cluster: Measurement and Data - Equivalence, measurement, data collection and representation, comparison and relationships, operations meanings and relationships, estimation, basic facts and algorithms, practices, processes, and proficiencies

Time frame: 1.5 weeks

- Topic 15: Graphs and Data (8 days)

State Standards

- 2.4.2.A.1 - Measure and estimate lengths in standard units using appropriate tools
- 2.4.2.A.4 - Represent and interpret data using line plots, picture graphs, and bar graphs

Essential content/objectives: At end of the unit, students will be able to:

- Measure data and record in a data table, bar graph, pictographs, and line plots
- Represent and interpret data using bar graphs, pictographs and line plots
- Apply reasoning and problem solving strategies to draw conclusions from graphs

Core Activities: Students will complete/participate in the following:

- Mathematical literacy stories
- Hands on learning through manipulatives
- Vocabulary activities
- Explicit modeling instruction
- Guided and independent practice
- Problem solving
- Differentiated practice

Extensions:

- Enrichment and Additional practice worksheets
- Center games
- Problem solving leveled reading maps
- Pick a Project extensions
- 3 ACT Math problem solving
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Remediation:

- Center games
- Reteach and practice worksheets
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- Online interactive lessons

Instructional Methods:

- Direct instruction
- Modeling
- Problem Solving interactive learning
- Guided practice
- Independent practice
- Differentiated instruction
- Visual learning
- Manipulatives

Materials & Resources:

- Teacher manuals
- Student manipulative kits
- Student workbooks
- Student and teacher online resources
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Assessments:

- Placement test
- Topic tests
- Performance assessment
- Basic facts timed tests
- Benchmark test

Curriculum Scope & Sequence

Planned Course: Mathematics Grade 2

PA Core Cluster: Numbers and Operations in Base Ten - Number uses, classification, and representation, numbers and a number line, comparison and relationships, patterns, relations, and functions, operations meanings and relationships, properties, basic facts and algorithms, practices, processes, and proficiencies

Time frame: 5 weeks

- Topic 9: Numbers to 1,000 (12 days)
- Topic 10: Add Within 1,000 Using models and Strategies (9 days)
- Topic 11: Subtract Within 1,000 Using Models and Strategies (8 days)

State Standards

- 2.1.2.B.2 - Use place value concepts to read, write, and skip count to 1000
- 2.1.2.B.3 - Use place value understanding and properties of operations to add and subtract within 1000
- 2.4.2.A.3 - Solve problems and make change, using coins and paper currency with appropriate symbols

Essential content/objectives: At end of the unit, students will be able to:

- Understand place value to 1,000 including naming, reading, writing, and composing numbers
- Skip count by 5s, 10s, 100s, and 1,000s
- Comparing three-digit numbers using place value
- Use place value understanding and different strategies and models to add three-digit numbers with and without regrouping
- Use place value understanding and different strategies and models to subtract three-digit numbers with and without regrouping
- Apply reasoning and problem solving strategies to solve for three-digit addition and subtraction problems

Core Activities: Students will complete/participate in the following:

- Mathematical literacy stories
- Hands on learning through manipulatives
- Vocabulary activities
- Explicit modeling instruction
- Guided and independent practice
- Problem solving
- Differentiated practice

Extensions:

- Enrichment and Additional practice worksheets
- Center games
- Problem solving leveled reading maps
- Pick a Project extensions
- 3 ACT Math problem solving
- Online practice games

Remediation:

- Center games
- Reteach and practice worksheets
- Student manipulative kits
- Online interactive lessons

Instructional Methods:

- Direct instruction
- Modeling
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- Guided practice
- Independent practice
- Differentiated instruction
- Visual learning
- Manipulatives

Materials & Resources:

- Teacher manuals
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- Student workbooks
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Assessments:

- Placement test
- Topic tests
- Performance assessment
- Basic facts timed tests
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Curriculum Scope & Sequence

Planned Course: Mathematics Grade 2

PA Core Cluster: Measurement and Data - Equivalence, measurement, data collection and representation, comparison and relationships, operations meanings and relationships, estimation, basic facts and algorithms, practices, processes, and proficiencies

Time frame: 10 weeks

- Supplemental Money Lessons and Activities with Coin Identification, Counting Coins, Making Equal Amounts (6 days)
- Topic 8: Work With Money (7 days)
- Topic 8: Working With Time *supplemental review of time to the hour, half hour (2 days) Supplement additional practice of time to 5 minutes (add 2 days). Supplement additional practice of Time Before & After the Hour (add 1 day) (10 days total)
- Topic 12: Measuring Length (11 days)
- Topic 13: Shapes & Their Attributes (10 days)
- Topic 14: More Addition, Subtraction, and Length (7 days)

State Standards

- 2.1.2.A.1 - Represent and solve problems involving addition and subtraction within 100
- 2.1.2.B.2 - Use place value concepts to read, write, and skip count to 1000
- 2.4.2.A.3 - Solve problems and make change, using coins and paper currency with appropriate symbols
- 2.4.2.A.2 - Tell and write time to the nearest five minutes using both analog and digital clocks
- 2.4.2.A.1 - Measure and estimate lengths in standard units using appropriate tools
- 2.4.2.A.6 - Extend the concepts of addition and subtraction to problems involving length
- 2.2.2.A.3 - Work with equal groups of objects to gain foundations for multiplication
- 2.3.2.A.1 - Analyze and draw two- and three-dimensional shapes having specified attributes
- 2.3.2.A.2 - Use the understanding of fractions to partition shapes into halves, quarters, and thirds

Essential content/objectives: At end of the unit, students will be able to:

- Identify and name coins
- Count sets of coins to find the total amount
- Use or draw coins to show multiple ways to make the same amount
- Add and subtract coin and dollar amounts
- Tell time to the nearest hour, half hour, or five minutes
- Tell times before and after the hour and use their special names - quarter after, half-past, quarter to
- Estimate and measure lengths using the appropriate measurement or tool
- Choose the correct measurement tool given an object to measure
- Measure correctly to the nearest inch or nearest centimeter.
- Identify polygons and list their attributes
- Group shapes by their attributes
- Identify and count flat surfaces, edges, and vertices on both plane and solid shapes
- Relate plane shapes to solid figures
- Make and cut shapes apart
- Divide shapes into equal parts
- Identify equal parts and wholes of shapes

Core Activities: Students will complete/participate in the following:

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- Hands on learning through manipulatives
- Vocabulary activities
- Explicit modeling instruction
- Guided and independent practice
- Problem solving
- Differentiated practice

Extensions:

- Enrichment and Additional practice worksheets
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